



(19)

Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 941 740 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
02.02.2000 Bulletin 2000/05

(51) Int. Cl.⁷: **A61L 33/00**, **A61L 31/00**,
A61L 27/00

(43) Date of publication A2:
15.09.1999 Bulletin 1999/37

(21) Application number: **99301980.1**

(22) Date of filing: **15.03.1999**

(84) Designated Contracting States:
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SE**
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **13.03.1998 US 41497**

(71) Applicant: **MEDTRONIC, INC.**
Minneapolis, Minnesota 55432-3576 (US)

(72) Inventors:
• **Hendriks, Marc**
6441 KD Brunssum (NL)
• **Verhoeven, Michel**
6221 BD Maastricht (NL)

• **Cahalan, Patrick**
6166 KE Geleen (NL)
• **Cahalan, Linda**
6166 KE Geleen (NL)
• **Koulik, Edouard**
6227 ET Maastricht (NL)
• **Gillissen, Mirlan**
6301 VP Valkenburg a/d Geul (NL)

(74) Representative:
Golding, Louise Ann
Frank B. Dehn & Co.,
179 Queen Victoria Street
London EC4V 4EL (GB)

(54) Attachment of biomolecules to surfaces of medical devices

(57) The invention relates to a medical device having a biomolecule immobilized on a substrate surface thereof via an amino-functional polysiloxane. The invention also relates to a method for making such a device which includes coating the substrate surface with an amino-functional polysiloxane; and contacting the amino-functional polysiloxane coated surface with a biomolecule under conditions effective to immobilize the biomolecule.

EP 0 941 740 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 30 1980

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 608 095 A (MEDTRONIC INC) 27 July 1994 (1994-07-27) * abstract * * page 2, line 16-21 * * page 3 * * page 4, line 1-12 * * page 5, line 33-35 * ---	1-3,5, 10-17, 20,21, 23,24	A61L33/00 A61L31/00 A61L27/00
X	US 5 053 048 A (PINCHUK LEONARD) 1 October 1991 (1991-10-01) * abstract * * column 2, line 57-68 * * column 3, line 8-11,42-52 * * column 4, line 6-11 * * column 6, line 55-66 * * examples 1,3 * ---	1-3,5, 10-15, 17,23,24	
X	US 4 786 556 A (HU CAN B ET AL) 22 November 1988 (1988-11-22) * column 3 * * column 4, line 36-39 * * column 5, line 42-54 * * column 6, line 52-56 * * column 8, line 47-54 * * example 2 * ---	1,5-15, 17,23	TECHNICAL FIELDS SEARCHED (Int.Cl.6) A61L
A	US 5 679 659 A (VERHOEVEN MICHEL ET AL) 21 October 1997 (1997-10-21) * abstract * * column 8, line 65-67 * * column 3, line 33-40,56,64 * * column 4, line 53 * * column 5, line 15-17 * * example 1 * --- -/--	1,2, 5-17,21	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 6 December 1999	Examiner Böhm, I
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03/82 (PdcC01)



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 99 30 1980

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CI.6)
A,D	US 4 239 729 A (FUKASAWA HIROMICHI ET AL) 16 December 1980 (1980-12-16) * abstract * * column 5, line 18-32, 58-63 * ---	1, 10, 11, 13-16, 24, 25	
X,P	EP 0 832 655 A (SCHNEIDER USA INC) 1 April 1998 (1998-04-01) * abstract * * column 4, line 19-34 * * column 5, line 12-30 * * column 6, line 8-15, 46-58 * * column 7, line 1-13 * * column 14, line 25-47; claim 6 * -----	1, 2, 5-17, 24, 25	
			TECHNICAL FIELDS SEARCHED (Int.CI.6)
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 6 December 1999	Examiner Böhm, I
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03 82 (PatC01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 99 30 1980

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

06-12-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0608095 A	27-07-1994	US 5350800 A	27-09-1994
		AU 670143 B	04-07-1996
		AU 5237193 A	28-07-1994
		CA 2112619 A	20-07-1994
		DE 69418220 D	10-06-1999
		JP 8191887 A	30-07-1996
US 5053048 A	01-10-1991	NONE	
US 4786556 A	22-11-1988	US 4720512 A	19-01-1988
US 5679659 A	21-10-1997	AU 6951796 A	19-03-1997
		EP 0874648 A	04-11-1998
		JP 11511355 T	05-10-1999
		WO 9707834 A	06-03-1997
US 4239729 A	16-12-1980	JP 54160098 A	18-12-1979
		AU 527493 B	10-03-1983
		AU 4782679 A	13-12-1979
		BR 7903583 A	22-01-1980
		CA 1128393 A	27-07-1982
		EP 0005866 A	12-12-1979
		ZA 7902810 A	25-06-1980
EP 0832655 A	01-04-1998	CA 2207659 A	13-12-1997
		JP 10052502 A	24-02-1998

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82